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ABSTRACT

This paper proposes that a formal, systematic process, supported by "hard" data, be utilized to identify and define the needs of learners and of society so that effective and efficient education may be designed, implemented, and evaluated. Three preliminary models for assessing educational needs are presented and exemplified by describing activities in three California unified school districts. Also included is a limited analysis of the steps an educational agency may take to identify and define criteria for relevant educational goals upon which an effective and efficient educational program may be based. (Author/MLF)

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DETERMINING EDUCATIONAL NEEDS - AN OVERVIEW

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Roger A. Kaufman and J. Richard Harsh

INTRODUCTION

In the plan of American public education, the state laws (education codes) stipulate the general societal agreements as to what should be included in the education program. At the local level, the elected representatives of the citizenry and the administration of the school are responsible for deciding the manner in which the local citizenry wish to implement the state laws of education in the most desired and effective manner for their community.

School boards, administrators, teachers, curriculum designers, instructional technologists and citizens have the responsibility of identifying the content and means by which the educational purposes will be achieved. Although this might appear to be a "one-time-only" job, the constant change of society makes it essential that the educational program be responsive to the needs of the local situation and the economic and socio-political changes of society.

Unfortunately these decisions for the conduct and development of the educational program frequently are based upon information which is generally casual and unsystematic. The concomitance of this has been observed in the subgroups of citizens voicing their dissatisfactions with the educational product (outcomes) resulting in behavior typified by voting against an increase of financial support for schools. This type of overt action directly or indirectly implies that the citizens of the community have "evaluated" the educational program and are saying "no" to its continuing as it has been conducted. Unfortunately the criteria for evaluation which underlie these actions by the citizens are generally ambiguous and applied unsystematically as illustrated by citing the "case of one" to represent the lack of effectiveness of the educational program. Moreover, instances of undesirable behavior are erroneously attributed to result solely from the school program (the educational institution) rather than from the multiple forces in the society.

Part of the confusion or uncertainty assuredly lies with the lack of precise definition of goals of education and the equally unsatisfactory communication and understandings that have accrued in relation to both the contents and processes of education.

It is difficult, if not impossible, to develop a program which will satisfy the needs and aspirations of a society if that program is not explicitly stated. Without such definition, each member of the society, whether he is a teacher, parent, or employer, will find it difficult to determine if the educational goals have been achieved or if the praise or condemnation of an educational program is warranted.

CONFUSION OF MEANS AND ENDS

Education suffers from the malady of preoccupation with means and confusion of goals. This comment is certainly not to infer that there has not been an impressive array of statements of educational goals during the past fifty years. Many of these goals statements have been based upon the "Seven Cardinal Principles of Education" which include: (1) health, (2) command of fundamental processes, (3) worthy home membership, (4) vocational competence, (5) ethical character, (6) effective citizenship, and (7) worthy use of leisure time. Additional goals stated by the eight-year study of education in 1936 by the Educational Policies Commission of the NEA, by the American Association of School Administrators in 1951 and 1967, by most state departments of education, county education offices, local school districts, and (more recently) by various professional groups such as the American Psychological Association, and conferences called to define the objectives of education, such as the 1960 White House Conference, and the recent work of Bloom and his associates to identify a taxonomy of educational objectives.

However, it may be observed that most statements of educational goals have a common limitation in that they are frequently written in diffuse, broad terms that are generally unmeasurable and unassessable in the terms in which they are stated.

What is required for the design of a viable educational program is a set of realistic and precise goals to which the process of education is to be responsive. Probably the single most important task is the determination of educational content which is relevant. A basic question for the process of such a determination is: Who are to be involved in the definition of educational goals to assure relevancy? If education is to serve all individuals of the society, then representation and consideration for all facets of society must be included in the identification and statement of educational needs and goals.

A recent attempt to provide goals for education by involving broad representation of the region which the program is to serve is exemplified by the work of the Pennsylvania State Department of Instruction in conjunction with the Educational Testing Service. Through the work of cross-sectional panels composed of parents, citizens and professionals in education, ten goals were derived. The ten goals derived from this particular effort stated: "Quality education should:

1. help every child acquire the greatest possible understanding of himself and an appreciation of his worthiness as a member of society;

2. help every child acquire understanding and and appreciation of persons belonging to social, cultural, and ethnic groups different from his own;

3. help every child acquire to the fullest extent possible for him mastery of the basic skills in the use of words and numbers;

4. help every child acquire a positive attitude toward school and toward the learning process;

5. help every child acquire the habits and attitudes associated with responsible citizenship;

6. help every child acquire good health habits and an understanding of the conditions necessary for the maintenance of physical and emotional well-being;

7. give every child opportunity and encouragement to be creative in one or more fields of endeavor;

8. help every child understand the opportunities open to him for preparing himself for a productive life which will enable him to take full advantage of these opportunities;

9. help every child to understand and appreciate as much as he can of human achievement in the natural sciences, the social sciences, the humanities and the arts;

10. help every child to prepare for a world of rapid change and unforeseeable demands in which continuing education throughout his adult life should be a normal expectation."

The above goals are of initial interest and suggest the requirement for further analysis and refinement to allow for definition of criteria in operational and measurable terms. In addition, it is essential that these refinements of broad goal statements clearly differentiate the content of the products (or outcomes) that are to result from the educational programs from the processes, facilities and operations through which they are to be achieved.

Another effort to determine relevant goals for education might be characterized by the process of determining need and then, on the basis of the determination of need, to identify the educational goals and objectives that have the most relevance. Such an effort is suggested by the recent efforts of the California PACE Centers (Program for the Advancement of Creativity in Education, ESEA Title III) with the encouragement of D.W. Johnson of the California State Department of Education. The PACE Centers undertook assessment of needs in areas served by the Centers. This need assessment data was collected by Sweigert, and summarization indicated that areas of greatest agreement (of discrepancy) to which local educational agencies might well address themselves were basic skills, attitudes toward school and vocational preparation. This work, although not to be considered the ultimate in either the techniques or outcomes of needs assessment, seems to indicate that such an assessment is possible, and may be made in regions involving the citizenry and professional educators. It is here argued that such an identification of needs may be useful for educators and educational agencies in the design of an instructional program which will improve the schools' responsiveness to the needs of the learner and society.

DEFINITION OF A NEED

The word "need" seems to have unique meaning to different individuals. It is therefore important to begin with a definition of need which will leave little doubt in the mind of the user about what is meant. For purposes of this

presentation, a need is defined as "the discrepancy between 'what is' and 'what should be'."

According to this definition, needs are not such things as individualization of instruction, providing more teachers, increasing teachers' salaries, use multi-media, use differentiated staffing, etc. These are examples of solutions or means for reaching a solution, and as such would be selected and used after the needs and the problems had been identified.

An example of a need (strictly hypothetical) might be: "Learners in X school district have a mean performance on a valid reading test of Z with a standard deviation of L. The school board of this district has agreed that mean learner performance of Z is inadequate to accomplish subsequent educational attainments or entry requirements for specified vocations. Thus the school board for this district has indicated there is a requirement for mean learner performance at least at B, with a standard deviation of not greater than R." This hypothetical example might illustrate a discrepancy between "what is" and "what should be" - namely an "operationally" defined need.

In any area of educational endeavor needs may be assessed or identified, and thus provide the educational practitioner with an array of needs to be potentially eliminated or neutralized. Given an operational educational agency such as a state, county, or school and a list of documented needs, how does an educator go about being responsive to the identified discrepancies between what is being accomplished and what is required, or should be accomplished?

SELECTING AMONG NEED PRIORITIES

It would be too much to believe that any educational agency would have all of the resources available to be responsive to all needs identified in their area of cognizance. The use of need assessment data would then seem to be resolvable through a process of selecting the highest priority needs with which to deal. This requires a procedure for weighting each of an array of needs to determine those of greatest priority. One such procedure was developed by Kase at the North Bay PACE Center (California), in which he derived a statistical weighting of needs as identified by the various "partners" in the educational process.

The important point is that a systematic method must be adopted to make decisions concerning the assignment of priority among identified and documented needs. Just as it is critical for the identification of needs to be made through a systematic procedure, so, too, is it essential that the assignment of priorities is also accomplished in a systematic way. It is unfortunate that in the past some of these assignments of priorities have been made by using unsystematic and casual judgments of selected members of school boards, school administrators, parents or teachers. This is not to deny the sincerity and dedication of the people who have made these decisions. It is argued that a systematic procedure must be used to identify needs, establish priorities of needs, and compile unambiguous criterion data which may readily be communicated. There seems to be little question (although this has not been widely accomplished in the past) that research points toward several valid means and strategies for identifying needs documented by "hard" empirical data obtained from the operational world. Priority setting may then be

achieved by means of a "trade-off" among considerations of relevancy, practicality and levels of urgency.

Hanna suggests three foci of curriculum of concern to educators: (1) nature of knowledge, (2) nature of learner, and (3) nature of society. Kaufman, Corrigan and Johnson suggest that many educators tend to focus on one or perhaps two of these dimensions and thus might design programs of instruction which are less than responsive to the total educational requirements. They go on to suggest that all three of these variables must operate in concert, and the achievement of relevance should be approached by first considering the nature of the society to be served, next the nature of the learner, and finally the nature of knowledge. From there, the authors suggest that a possible utility criterion for designing educational programs would be the goal (or mission objective) that, upon leaving the educational agency, the learner should be able to (a) survive, and hopefully (b) contribute. This suggests the criterion of minimal survival as being the condition where the individual produces exactly as much as he consumes. The inference suggested by this model is consistent with the conception of a responsible and contributing citizenry. It furthermore suggests an array of criteria upon which to base educational needs and accomplishments.

Lest educational needs assessment be perceived as a mechanical, one-time-only process, it is here contended that this process is one which, through precision of definition and clarity of presentation of the data upon which decisions are made, will afford an opportunity for an orderly planning, management and review of an educational system in a continuous and self-correcting manner. It should also be emphasized that the stating of objectives and their derivative criteria in measurable terms is not a process of "casting in concrete"; rather it is simply one of setting goals which may be assessed, critiqued, evaluated and revised to provide an on-going, self-corrective model for the improvement of education.

THE PROBLEM OF OBSERVABILITY AND MEASURABILITY

A frequent objection to such a "crass and materialistic" assessment of needs is that "all things that we are attempting to accomplish in education are not quantifiable." It is further feared by some that in our attempt to make all things measurable we might be tempted to overlook individual personal traits or other facets that are elusive and seem to defy quantification and exclude them in favor of the behaviors which, while being quite measurable, might be trivial or even irrelevant or wrong. It is quite true that just because an objective is in measurable performance terms, it does not necessarily mean that it is the most valid or the most relevant or the most responsive to priority needs.

This objection to either trivia or difficulty of quantification is not to assessment of needs (or a system approach), but is perhaps an indictment of the educational planner who does not adhere to the discipline of a professional endeavor such as is required in conducting a valid needs assessment. It is quite true that people rationalize and often attempt to "slide over" things that are difficult by assuring themselves that they are either unimportant or they will be "caught" somewhere else. This lack of objectivity and integrity must be constantly guarded against, for an educational effort is only as good

as the data upon which it is built. This requirement for "hard" data has historically been the difficult item to achieve. For example, one may often observe the statement that "Education should develop creative individuals." Most agree that creativity is important, but there has been gross difficulty in the ability to define creativity in operational terms. Is one then to throw creativity out of the curriculum? Hardly. What the suggested process requires that we do is to note that there is an undefined requirement, and we must set up a procedure for defining it. After all, if we do not know what it is, how can we say we are doing it now or ever? By not attempting to define it, we also might be using less integrity than is required by burying a problem and hoping it will go away or that it really does not exist.

Certainly one of the greatest obstacles to the observability or measurability of our educational products has been the somewhat restricted concepts of the manner in which such observation or measurement may occur. It is not uncommon to hear laymen and professional educators agree that the standardized measurements of selected aspects of the academic program are frequently dealing with only limited outcomes, and these outcomes frequently are of lesser importance than other objectives or goals. The conclusion that measures do not currently exist for many of the products desired should not form a wall which prevents any further definition, observation and measurement. It is here argued that: <u>that which may be defined in terms that may be commonly observed by the capacities of the human are indeed measurable items</u>, whether it be creativity, an attitude toward politics, or social participation. A precise definition of how it may be observed lends direction to systematic procedures through which it may be measured.

The problem of measurability, then, is not the question of what "standardized instruments" currently exist, but is a question of the precision and clarity of the definition of the behavior which is desired and anticipated to result from an educational experience. This is not to suggest that some needs and their attendant or concomitant desired behaviors required to eliminate the need are not complex and difficult to define. Furthermore, as the complexity of the behavior increases, the difficulty of reaching some consensus on meaning and relatability of criteria to that behavior also tends to increase. However, this is the very essence of the problem in the assessment of needs and the determination of valid educational goals. Without the ability to precisely define that which is needed and the behavior which will accomplish a resolution of this need, the several segments of society which education is to serve will continue to be in confusion if not controversy with each other concerning whether the program as planned and conducted and the products that are achieved are relevant and effectively accomplished.

The conduct of an assessment of educational needs, then, is a critical precursor to the design, implementation and completion of valid and useful educational programs. The remainder of this presentation will offer some preliminary models for assessing educational needs, and a limited analysis of the steps which an educational agency may use to identify and define criteria for relevant educational goals upon which an effective and efficient educational program may be based.

SOME MODELS FOR ASSESSING EDUCATIONAL NEEDS

How does one go about assessing educational needs? As indicated earlier, many have used such procedures as getting judgments of school personnel, asking selected citizens, school board members, community members, or collecting learner performance data. Educational agencies conducting assessments of needs have used questionnaires, interviews, reviewed performance data, recorded pronouncements of experts, and have just plain guessed. This presentation does not pretend to offer a universal model for needs assessment, but suggests some examples of beginning attempts in the problem-solving process by obtaining need data in measurable form. Futhermore, it is to suggest some viable alternatives for assessing needs, developing criteria and initiating a systematic, auto-correcting model.

As indicated earlier, there are a number of ways in which educational needs may be assessed. It would seem imperative, however, regardless of the strategy employed, to be sure that precise and unambiguous data are accumulated wherever possible. The probability of being able to design a responsive educational program is directly dependent upon the clarity and quantifiability of the data base utilized for stating need.

It is possible to identify at least three different models for the assessment of needs to which an educational agency is to be responsive. Figure 1 shows the basic characteristic process steps for the three models: Type I which is basically inductive in nature and starts with identification of extant behaviors which are then organized and classified relative to obtaining goals; Type D which is basically deductive and starts with an existing goal referent and derives appropriate and responsive goals and goal indicators; and Type C which is an approximation of the "classical" method of assessing needs and identifying goals which are primarily educator-centered.

The Type C model will not be discussed here since it is suggested that responsive education should depart from this referent and attempt to identify needs and related goals in a more precise, orderly and responsive fashion. The Type I model will be exemplified by describing activities conducted at the Newport-Mesa Unified School District (California), and the Type D model will be presented using activities being conducted at the Temple City (California) Unified School District.

The Type I Model - The "Inductive-Type" model may be represented by the Instructional Tasks Project (an ESEA Title III activity) conducted in the Newport-Mesa (California) Unified School District - its concern was developing a model by which systematic information might be gathered from several sub-communities within the region served by the local educational institution. The informations gathered were the perceptions of the observed characteristics children displayed and the educational tasks that should be accomplished through public education.

The first phase of this project was to try out a procedure by which systematic information was gathered from several sub-communities. Previous experience with questionnaires in which the conventional outcomes of education were specified was rejected because of possible response tendencies to check a favorable or unfavorable response regardless of saliency and possible checking

GENERIC STRATEGIES FOR ASSESSING EDUCATIONAL NEEDS AND IDENTIFYING GOALS

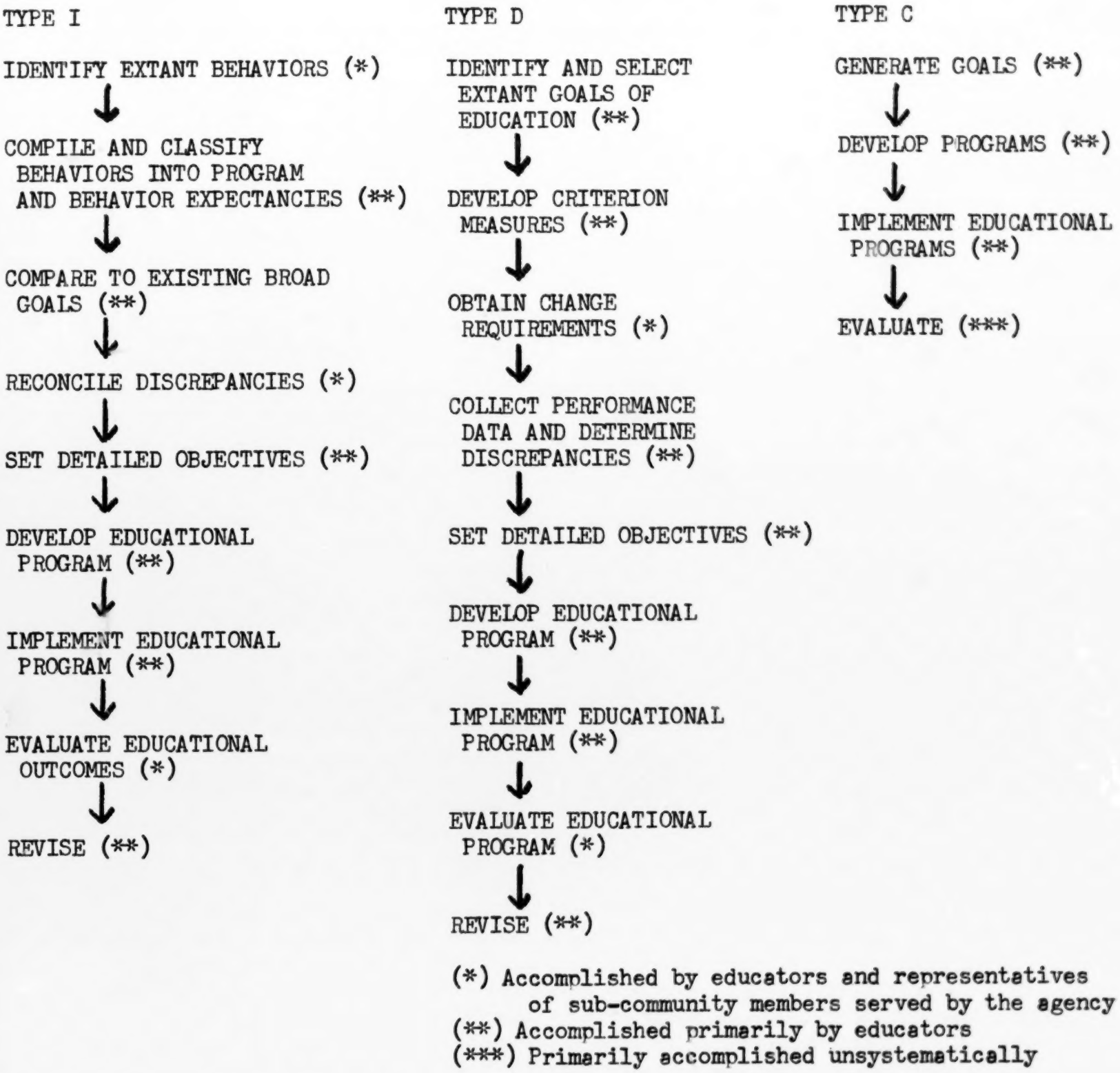
TYPE I
IDENTIFY EXTANT BEHAVIORS (*)
COMPILE AND CLASSIFY BEHAVIORS INTO PROGRAM AND BEHAVIOR EXPECTANCIES (**)
COMPARE TO EXISTING BROAD GOALS (**)
RECONCILE DISCREPANCIES (*)
SET DETAILED OBJECTIVES (**)
DEVELOP EDUCATIONAL PROGRAM (**)
IMPLEMENT EDUCATIONAL PROGRAM (**)
EVALUATE EDUCATIONAL OUTCOMES (*)
REVISE (**)
TYPE D
IDENTIFY AND SELECT EXTANT GOALS OF EDUCATION (**)
DEVELOP CRITERION MEASURES (**)
OBTAIN CHANGE REQUIREMENTS (*)
COLLECT PERFORMANCE DATA AND DETERMINE DISCREPANCIES (**)
SET DETAILED OBJECTIVES (**)
DEVELOP EDUCATIONAL PROGRAM (**)
IMPLEMENT EDUCATIONAL PROGRAM (**)
EVALUATE EDUCATIONAL PROGRAM (*)
REVISE (**)
TYPE C
GENERATE GOALS (**)
DEVELOP PROGRAMS (**)
IMPLEMENT EDUCATIONAL PROGRAMS (**)
EVALUATE (***)
(*) Accomplished by educators and representatives of sub-community members served by the agency
(**) Accomplished primarily by educators
(***) Primarily accomplished unsystematically

FIGURE 1, THREE DIFFERENT MODELS FOR DETERMINING EDUCATIONAL NEEDS, MODEL TYPE I IS BASICALLY INDUCTIVE, MODEL TYPE D IS BASICALLY DEDUCTIVE AND MODEL TYPE C IS INTENDED TO BE REPRESENTATIVE OF "CLASSICAL" EDUCATIONAL PROCEDURES FOR IDENTIFYING AND DEFINING GOALS AND OBJECTIVES.

of items for which the respondent had little or no actual experience or knowledge but made a "best-possible" guess. A response technique called the "critical incident" technique was utilized in an attempt to obtain the spontaneous and individual respondent suggestions regarding the desired dimensions and outcomes of an educational program. The logic of using this particular method was that as individuals' specified desirable or undesirable behaviors, these behaviors would represent specific illustrations of the presence or absence of the desired developments in youth.

Essential to this model was the commitment that all of the sub-communities which are served by education should participate in a proportional manner in the assessment; thus response from parents of school children, citizens at large, the social community, employers and institutions receiving students who are the products of the local educational program, the students themselves, and the professional educators would all be surveyed. While it would have been desirable to obtain reactions and suggestions from all members of every sub-community of the area served, it was impossible to finance and conduct. As a result, a random sample of these several sub-communities was selected. Sub-community representatives received explanations of the program and were invited to participate. Meetings were held for the invited sample where they wrote specific illustrations of desirable and undesirable behaviors of youth.

Because of the somewhat uneven performance by the samples invited to participate, follow-up work was initiated with the non-respondent population and the drawing of new random samples of the several sub-communities to check the reliability and validity of the information that had been gathered previously. In the analysis of the non-respondent population data it was readily observed that populations in different regions and of different demographic characteristics participated in variant ways.

The rationale for the data collection and data analysis was that the spontaneous perceptions of individuals participating would produce information which was (a) current, (b) specific, (c) important, and (d) relevant to the local population. The first step of the data analysis was the extraction of the specific behaviors from the critical incidents which identified expected or desired behaviors of youth. It was noted that even with the most precise instructions some respondents were unable to provide specific behavioral illustrations, and thus these comments were unusuable for the purpose of the data accumulation. From the composite of the behaviors accumulated, a classification system was developed whereby the specific behaviors might be classified under several broad headings and derivative sub-categories - in all 303 sub-categories of behavior. Next, a summarization of the responses from each of the sub-communities was made and these summarizations provided a profile of the composite perceptions (or expectancies) of the several sub-groups such as students, teachers, parents, employers, etc.

Phase I activities of the Instructional Tasks Project were constantly being considered in relation to the following questions: (1) Do the responses from the random samples of sub-communities represent a reliable and valid source of information concerning each community's expectation for youth? (2) Are the data comprehensive enough to be used as educational expectancies? (3) Does the non-respondent population have similar expectancies for youth? (4) Are the desired behaviors of youth expressed in these data primarily attributed to or perceived as resulting from the program in the public schools?

This project had the dual purpose of developing and validating a procedure as well as producing data which might be used for educational planning and evaluation. Since both purposes were operative in all phases of the project, no data at any point in the project will be treated as final and unchanging. This procedure may be illustrated by the following process identifying the Instructional Tasks Project: assessment → data summarization → check on reliability and validity of data → data analysis → validation of the meaning of the data → reassessment → etc.

The Instructional Tasks Project has a variety of continuing activities in its subsequent phases. A comparison of written, oral, structured, and open-ended assessment techniques is being analyzed to determine the comprehensiveness, the reliability, the consistency and the validity of the information obtained. Cross-analysis of the participation of demographic groups in geographical regions included in the sampling are also being planned for such activities as voting practices, participation in school activities, and similar responses which have been identified to be other manifestations of the perceptions and needs as exemplified by the citizen's actions.

The data reduction and classification will utilize only the specific behaviors and situations cited rather than imposing translations or categorizations from previous studies outside of the district or goal statements of generic origin. Through the replication of assessments with several random samples, the decision will be made when assessment may be terminated and summarized because new data do not emerge from continued assessment at the time frame. At that time the classification system will be submitted back to each of the sub-populations sampled. The summary profile of desired and undesired behaviors will be considered, and the profile information communicated back to the sub-communities for the purpose of determining: (1) Is the information accurate? (2) Is the information comprehensive and inclusive of the most important developments for youth? (3) Are the behaviors cited primarily attributed to formal education or do they result from social-environmental conditions as well? (4) Is the information a valid reflection of the current status of youth? (5) What assessments of youth would be acceptable to presently determine the status of the attainment of the desired and undesired behaviors referred to by the expectancy profile?

Each sub-community will be first concerned with the acceptance or rejection of their own profile. At the same time, the model will include the activity of each sub-community being thus able to observe the profiles of other sub-communities. Ultimately, since education is to include all sub-communities' efforts, it will be necessary for each sub-community and the groupings of sub-communities to be asked to cope with the disparities of their profiles in order to produce a composite profile. This composite profile then becomes the explicit basis for the development of educational goals, behavioral expectancies and the criteria by which educational attainment may be planned, managed, assessed and evaluated.

While the description of this example of the Inductive Type has been brief, it is important to conclude this illustration by emphasizing that each phase or activity is planned with auto-corrective opportunities. For example, if the profile of desired behaviors suggested by the random sample of students is subsequently rejected by other samples of students as unrepresentative or inaccurate, a re-assessment to validate the original information is obviously

essential. This model emphasizes procedure which is to assure accurate information as well as conscious consideration of the data which will be used in subsequent decisions. Quantity will never assure the person who feels that the data is inaccurate and improperly selected; on the other hand, high quality, documented information may not assure the person who believes it to be atypical or uncommon. Both observations must be satisfied for rational concurrence and participation in the conceptualization, development, implementation and evaluation of a program of public instruction.

The Deductive Model: An example of the Type D model for assessing educational needs and developing realistic and valid goals may be illustrated by reviewing work in the Temple City (California) Unified School District. District personnel, desiring to derive relevant and practical goals for education, reviewed a number of existing educational goal statements, and identified the Pennsylvania/Educational Testing Service Ten Proposed Goals of Education as being compatible with their previously stated district goals, while bearing close resemblance to other extant statements. Because the selected ten goals were not in measurable terms, the district derived operationally defined index measures for each of the ten goals. After defining these index criteria, the district then undertook to determine the extent to which these criteria were currently being met, and to identify areas of discrepancies based upon performance relative to the desired performance specified in the index criteria.

In order to take advantage of the information and requirements of all persons involved in the educational process and outcomes, the index criteria were presented to the administrative council, and will be submitted to teachers, learners and to the community in order that all will (1) have the opportunity to add, modify or delete items, categories or areas, (2) understand and obtain some degree of concurrence on the educational goals of the District. After all involved sub-communities are sampled and have contributed to the over-all set of goals, performance data relative to the current state of achievement of the goals will be made, and detailed goals will be derived for various learner levels for the curriculum. This is to be an on-going process.

This basically deductive process involves all members of the educational "partnership" and assures that all sub-communities have the opportunity to participate in the identification and selection of goals. It further assures that the goals selected will be relevant and necessary based upon actual performance data collected at the need assessment phase and on a continuing basis to assure that there is both internal consistency and external validity.

As an example of the preliminary index measures identified in the Temple City effort, the following is for the fourth Pennsylvania/ETS Goal - "Quality education should help every child acquire a positive attitude toward school and toward the learning process."

A. At each grade level learners will individually and collectively display behavior which will:
   (1) Reduce unexcused absences by 10% as compared with previous year's attendance records.
   (2) Reduce unexcused tardiness by 10% as compared with previous year's attendance and punctuality records.

(3) Increase number of books and numbers and kinds of media used in libraries and instructional materials centers checked out and used by learners by 10% each year as compared with the previous year.
(4) Reduce recorded discipline problems (such as students sent to office, kept after school, etc.) by 10% each year as compared with the previous year.
(5) Reduce by at least 10% per year the number of defacings of school properties and materials as compared with the previous year's records. This will include such indicators as number of textbooks defaced, broken windows, graffiti, etc.
(6) Improve by at least 5% per year the average score on an attitude questionnaire given to learners which is designed to assess learner attitudes toward (a) school and (b) learning.

B. After graduation, when asked, previous learners will:
(1) Indicate at least 10% above previous year that what they had learned was important and useful.
(2) Indicate at least 10% above previous year that learning experiences at TCUSD were enjoyable.
(3) Continue education (adult education courses, college and university attendance [either part or full time], speciality courses and occupational courses) at a rate which increases at least 5% above the previous year.
(4) Number of books used and borrowed in TCUSD public libraries will increase at least 5% each year after the initiation of this program (to indicate improved attitude towards school and learning) as compared with the previous year.
(5) Obtain increasing support budget and program expansion for improved education.

While the above indicators are indeed crude, it should be kept in mind that there is no intent for them, collectively or individually, to be complete. Rather they are intended to be gross measures of the domain to which they are related with the requirement that further refinement, test and evaluation will provide "hard" data relative to their utility and revision.

Another example of a model for assessing educational needs may be illustrated by the design plan for the Norwalk-LaMirada (California) Unified School District. This design could be termed a "mixed" model since it provides the opportunity for either a prior selection of goals or an internal generation of goal data. The process steps, shown in Figure 2, provide a function flow diagram to illustrate the possible steps in conducting an assessment of needs and utilizing this data to design and evaluate educational activities.

The flow diagram indicates that the first function to be performed (1.0) is to identify overall goals of education, including the identification of possible goals (including such things as the Pennsylvania/ETS goals or the derivation empirically of goals), selecting a representative set of goals, and obtaining staff concurrence on the overall goals. Next (2.0), indicators for each goal are identified by teachers and staff. These indicators will be index measures in operational terms, requiring perhaps the training of the staff in objective-setting skills, development of indicators, and finally, making sure that there is acceptance of the total faculty and staff concerning the indicators for each of the overall goals.

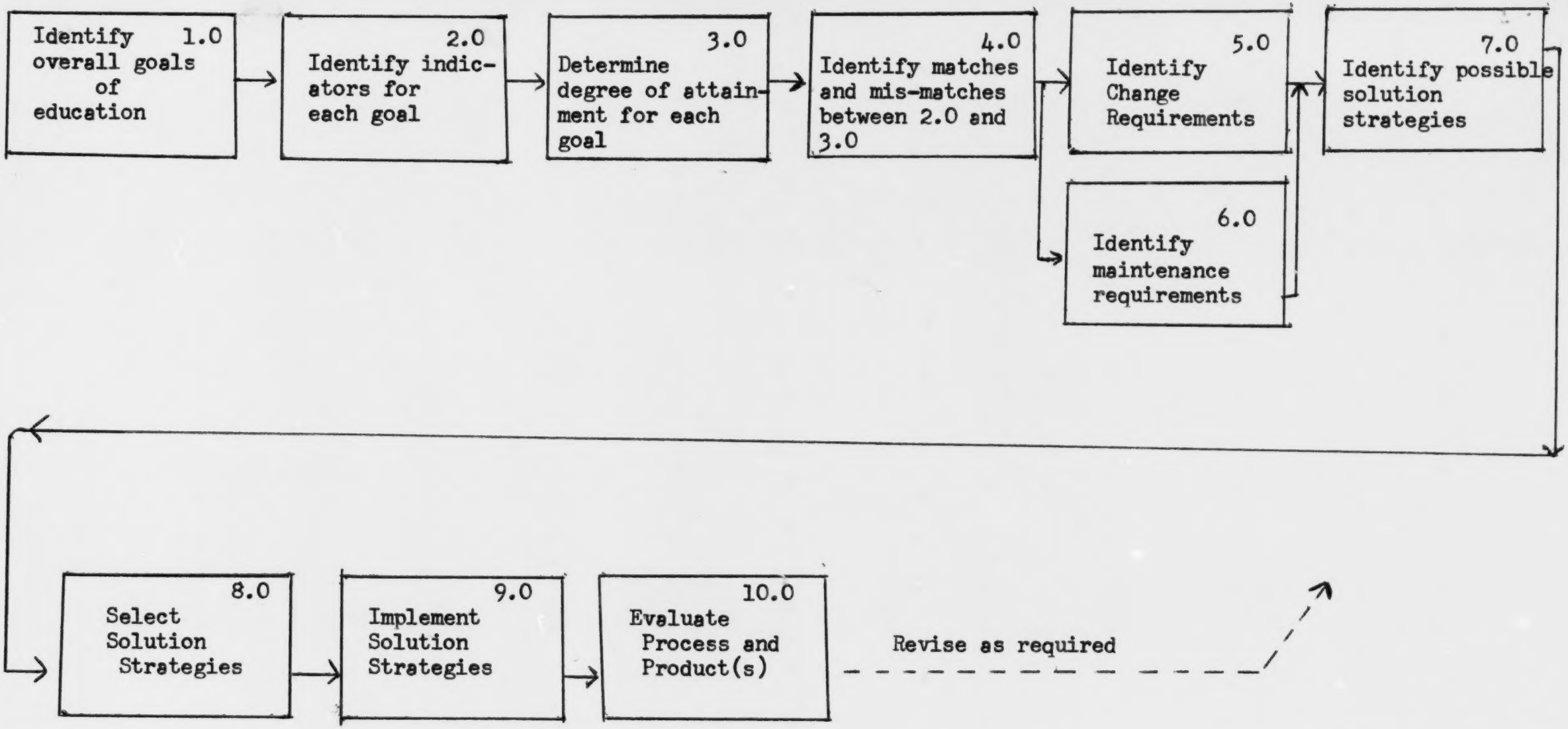
Identify overall goals of education 1.0
Identify indicators for each goal 2.0
Determine degree of attainment for each goal 3.0
Identify matches and mis-matches between 2.0 and 3.0 4.0
Identify Change Requirements 5.0
Identify maintenance requirements 6.0
Identify possible solution strategies 7.0
Select Solution Strategies 8.0
Implement Solution Strategies 9.0
Evaluate Process and Product(s) 10.0
Revise as required

FIGURE 2. A FUNCTION FLOW DIAGRAM OF A PLANNING MODEL FOR "MANAGING EDUCATIONAL CHANGE" WHICH INCLUDES ASSESSMENT OF EDUCATIONAL NEEDS (FUNCTION 1.0 THROUGH 6.0.)[4]

The third function to be performed (3.0) is to determine the degree of attainment of indicators for each goal - hard data is collected to determine the extent to which each goal is being achieved based upon the operational index criteria identified in the previous function. An additional sub-function of this would be the reconstituting or restructuring of goals and indicators based upon the data collected.

The fourth function to be performed (4.0) is to identify matches and mismatches between the data and criteria produced in the second and third functions. Here a determination would be made of the indicators being achieved and not achieved, and the degree of achievement and non-achievement. A match/mis-match analysis is a comparison which tells the extent to which there is compatibility or lack of it between two or more variables.

The fifth function (5.0) is to identify change requirements. Here, based upon the foregoing information, changes in curriculum, facilities, timing, instructional skills and instructional media, evaluation techniques and procedures, and management and administration are identified and put into criterion form to serve as requirements for designing change.

Concurrently with the fifth function (identify change requirements) the sixth (6.0) function may be performed - identify maintenance requirements. Here the requirements for maintaining that in the educational process which is working properly and should be continued are identified. Without the performing of this function, that which is currently working well might be overlooked or ignored, and current success could be obliterated by oversight rather than be design based upon need.

The above six functions are related to the assessment of needs in a planned operational effort. The remaining functions include: (7.0) identify possible solutions - strategies for meeting the requirements identified in the needs assessment; (8.0) selection of the solution strategies based upon some criteria (possibly cost-benefit); (9.0) implement solution strategies; and (10.0) evaluate processes and products of the educational system to determine the extent to which the educational system is meeting its objectives.

The dotted line indicates that revision is required for the functions that were not producing educational outputs which met the required objectives and criteria.

The foregoing examples represent only several of a possibly large array of models for assessing educational needs. Other models are being developed throughout the educational community and will be tested and evaluated in the future. The examples in this paper are designed to only indicate possible models for making sure that educational objectives are derived from a data base which better assures relevancy of process and product.

SUMMARY

It is suggested that education is required to serve the needs of learners and the society to which the learners will go when they leave our educational agencies. The survival and contribution of our future citizens is far too important to leave to guesses and hunches - it seems imperative that we formally investigate the realities of the exact nature of the requirements

for learners, both in school and in the "real world" to which they will go.

It is further suggested that a formal, systematic process be utilized to identify and define (supported by "hard" data) the needs of learners and the society so that effective and efficient education may be designed, implemented and evaluated, which will provide for predictable learner achievement.

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